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University of Montana Report of the President 1898-1899

University of Montana (Missoula, Mont.). Office of the President

ANNUAL REPORT

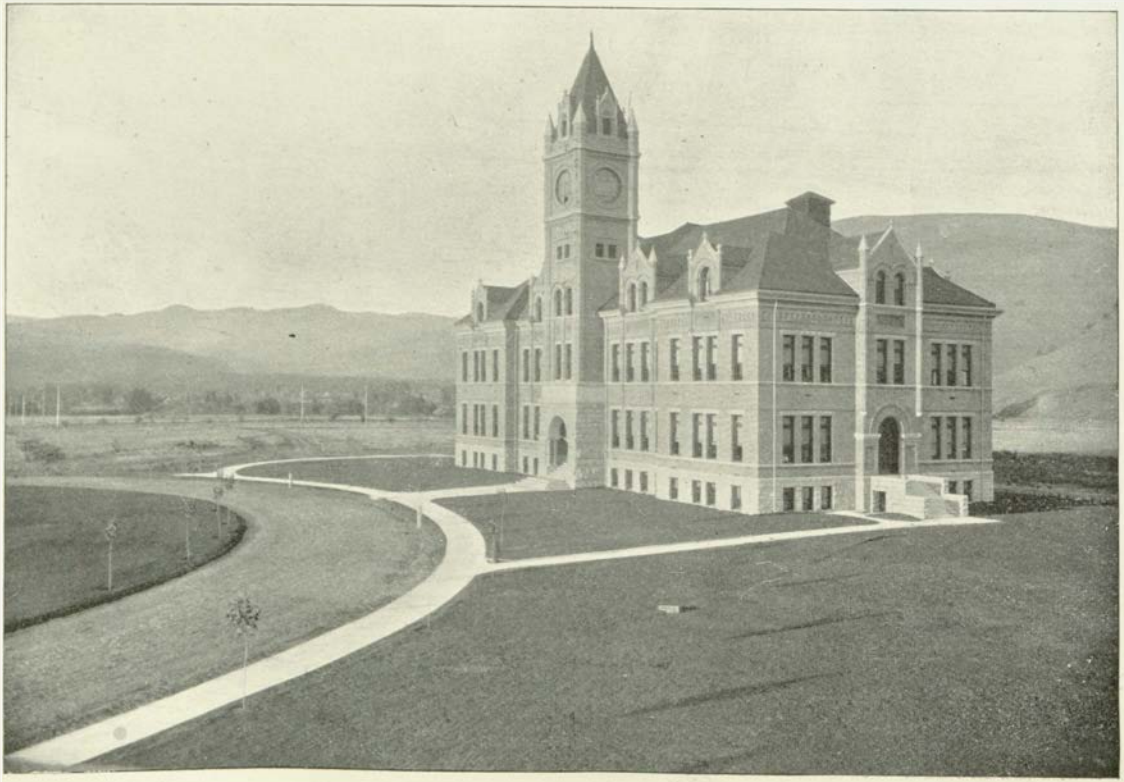
OF THE

PRESIDENT

OF

THE UNIVERSITY OF MONTANA.

1898-99.



UNIVERSITY HALL.

THE

Fifth Annual Report

OF THE

PRESIDENT OF THE

University of Montana

TO THE

Montana State Board of Education.

1899
INDEPENDENT PUBLISHING CO.
HELENA, MONTANA.

The Faculty.

OSCAR J. CRAIG, A. M., Ph. D., President,
Professor of History.

CYNTHIA ELIZABETH REILEY, B. S.,
Professor of Mathematics.

W. M. ABER, A. B.,
Professor of Latin and Greek.

FREDERICK C. SCHEUCH, B. M. E., A. C.,
Professor of Modern Languages.

MORTON J. ELROD, A. M.,
Professor of Biology.

FRED D. SMITH, B. S.,
Professor of Chemistry and Physics.

EUNICE JULIA HUBBELL, B. Ph.,
Professor of English Literature.

ARTHUR L. WESTCOTT, B. M. E.,
Professor of Mechanical Engineering.

MRS. WALTER WHITAKER,
Instructor in Music.

ELOISE KNOWLES, Ph. B.,
Instructor in Drawing, and Assistant in English.

GRACE HERNDON,
Instructor in Vocal Music and Physical Culture.

LOUISE HATHEWAY, B. A.,
Assistant in Preparatory Department.

GUY M. CLEAVELAND,
Instructor in the Gymnasium.

EARL DOUGLASS, M. S.,
Assistant in Geology and Physics.

MARY A. CRAIG, B. S.,
Librarian.

PRESIDENT'S REPORT.

University of Montana,
Missoula, Montana, Nov. 30, 1899.

To the Montana State Board of Education, Helena, Montana:

Gentlemen:—In accordance with Section 5 of "An Act to establish, locate, maintain and govern the University of Montana," the following report for the year ending November 30, 1899, is respectfully submitted:

THE GENERAL PROGRESS OF THE UNIVERSITY.

The year just closing has been marked by rapid and substantial progress in all the different departments of the University. The attendance in the collegiate departments of the University has been greatly increased. The preparation of the new students for their work is also steadily improving. The increase in the number of High Schools in the state, and the arrangement of the course of study in High Schools, so as to be in line with the work of the Preparatory Department, is bringing about desirable results. All the High Schools of the state having courses of study of sufficient strength have been commissioned as accredited schools, and their graduates are entitled to enter the collegiate departments of the University without examination.

The University is striving in every way possible to assist the public schools in their work, fully realizing that this is the source from which the majority of its students must be drawn.

The event of greatest importance occurring within the year has been the occupation of the new buildings. These were formally presented to the State Board of Education by the Building Commission on the 18th day of February. The exercises were held in the Assembly Hall and were attended by a large concourse of people. The presence of his Excellency, the Governor of Montana, the

members of the Sixth General Assembly, and a large number of State Officers, added much to the interest of the occasion.

THE FACULTY.

There have been only a few changes in the Faculty within the year now closing. Shortly after the last meeting of the State Board of Education James H. Wells, Professor of Mechanical Engineering, on account of continued ill health, tendered his resignation, to take effect September 1, 1899.

After advising with the Executive Committee of the State University, and the University Committee of the State Board of Education, Arthur L. Westcott, Professor of Mechanical Engineering in the Michigan College of Agriculture and the Mechanic Arts, was selected to fill the vacancy. Professor Westcott is a graduate of the Indiana School of Technology. After finishing his course and spending some time in graduate work, he took a position in the Michigan College of Agriculture and the Mechanic Arts. In this institution he served six years. His experience and ability have enabled him to take up the work and continue it in the efficient manner already inaugurated by his predecessor.

Miss Louise Hatheway, who was at your June meeting elected Assistant in the Preparatory, commenced work at the beginning of the semester and is giving instruction in German, Algebra and Latin.

As there seemed to be more work needed in the Department of Chemistry and Physics, Earl Douglass (B. S. Ames College, Iowa, M. S. University of Montana) was employed as Assistant. Mr. Douglass has been giving instruction in Physics, Geology and Physical Geography. Mr. Douglass has already collected and brought to the University a large geological collection. His employment at the University will enable him to arrange and classify this collection, thereby advancing the research work, that is so valuable to the state.

Mr. Guy M. Cleaveland and Miss Grace Herndon have been employed in the Gymnasium, and Fred Anderson as Laboratory Assistant in Merchanical Engineering.

DESCRIPTION OF CAMPUS AND BUILDINGS.

THE UNIVERSITY CAMPUS.

The University Campus is forty acres in extent, and lies near the southeastern limit of the City of Missoula, at the base of the hills which enclose the eastern end of the valley. To the north lies the Missoula River; westward stretches a wide plain, whose western and southern horizons are bounded by the Bitter Root Mountains. A substantial beginning has been made toward the improvement of the Campus. A double row of trees was planted along the north, west and south sides three years ago. Near the center an oval lawn of about three acres in extent is marked out by a broad graveled driveway; around this is a sidewalk, with a space between the walk and driveway for grass, flowers, or shrubbery. The entrance to this driveway is at the western side, from University Avenue.

A double row of trees is planted around the drive, one on the lawn around the inner edge of the drive, the other on the outer side of the walk. The trees planted this year, and the lawns started around the buildings and within the oval, have made an excellent growth, and already present a beautiful appearance.

The northeastern corner of the Campus has been laid out for an athletic field, and some work has been done there.

University Hall, the larger building, stands on the east side of the oval, directly opposite the entrance to the driveway, facing the west. A little to the south stands Science Hall, which faces toward the northwest, and, like University Hall, fronts upon the oval.

A little north of University Hall stands the bicycle shed, a small, neat building, in harmony with its surroundings. In the rear of University Hall stands a shed for the shelter of horses.

University Hall is 140 by 65 feet in its ground dimensions, and its central tower rises to a height of one hundred and twelve feet. This building has four floors, including the basement, which is so largely above ground as to be well lighted and fit for any sort of use. The basement walls are of granite; above these rise double brick walls of the most substantial character; the inner partition walls are also of brick.

Throughout the building, from basement upwards, is a uniform, handsome finish of dark tamarack and white pine wainscoting, in alternate strips; above this are white plaster walls.

Every room is connected with a large ventilating shaft, whose outlet is above the roof. The steam-heated radiators are fitted with a cold-air box, whose connections with the outer air through the walls of the building can be opened and closed at pleasure. When these are open, fresh air is drawn into the room through the radiator, while the air of the room is drawn out through the ventilating shafts. This ventilating arrangement, while simple and inexpensive, is found to be efficient. Ample heat is furnished by the steam plant in Science Hall. The three essential requirements—light, heat, and ventilation—are well supplied.

The basement has a wide hallway running through it, between the north and south entrances, with rooms on each side. This hall is divided in the center by a partition, which separates the whole basement into a northern and southern half, whose sole connection is the door through this partition. The northern half contains two small store rooms, now used by the Library, a room for the advanced work in drawing, a fire-proof vault, a cloak room, and a toilet room for women. The southern half contains two small storage rooms, a photographic dark room, a toilet room for men, and three large rooms, used at present as storage and work rooms for the Museum, and for the Departments of Biology and Geology.

From each half of the basement a stairway rises to the first floor. This floor, like the basement, is divided lengthwise by a broad hallway, extending between north and south entrances. The main entrance to the building, through the tower at the center of the western front, opens into this hallway. The center of the eastern half of the floor, all that part lying between the northern and southern stairways, is occupied by the Library, which also furnishes a reading and study room.

At the northeastern corner of the floor is the room for drawing, and at the southeastern is the Museum. The western half of the floor contains, in the southern part, the Laboratory and Lecture

Room of the Biological Department, and in the northern part, the Lecture Room for History, the President's office, and a room for the use of the Faculty and its Secretary.

The central part of the second floor is occupied by the Assembly Hall, a room of fine proportions and simple but elegant adornment. In height it rises through two stories, and has a gallery whose entrances are on the level of the third floor. The main floor of the Hall is seated with about 300 opera chairs, and the gallery will accommodate about 150.

The second floor has three rooms on each side of the Assembly Hall. On the northern side are the rooms for Mathematics and Modern Languages, to the latter of which is attached a smaller recitation room. On the southern side are rooms for Literature and Ancient Languages, and a smaller recitation room.

The central part of the third floor is occupied by the gallery of the Assembly Hall; north of this is a large room for the literary societies, and a recitation room; south of the gallery is the Gymnasium, which extends along the whole southern end of the building: adjacent to this is a smaller room, used for storage.

The whole building contains thirty-one rooms, without including six small rooms in the rear of the Assembly Hall—three on the second and three on the third floor. These rooms furnish a passageway from one end of the building to the other, without going through the Assembly Hall, and may also serve as cloak rooms; those on the second floor give access from the rear to the platform of Assembly Hall.

The most important of the rooms in University Hall are the Assembly Room, Library, Museum, Literary Society Hall, Gymnasium, Offices, Biological Laboratory, and seven lecture rooms of uniform size, for the departments of History, Drawing, Biology, Mathematics, Literature, Modern Languages and Ancient Languages.

From the flagstaff of University Hall floats an elegant silk bunting flag, 13x25. This flag was donated to the University by Morris Schlossberg, of Missoula, Montana.

THE BIOLOGICAL LABORATORY.

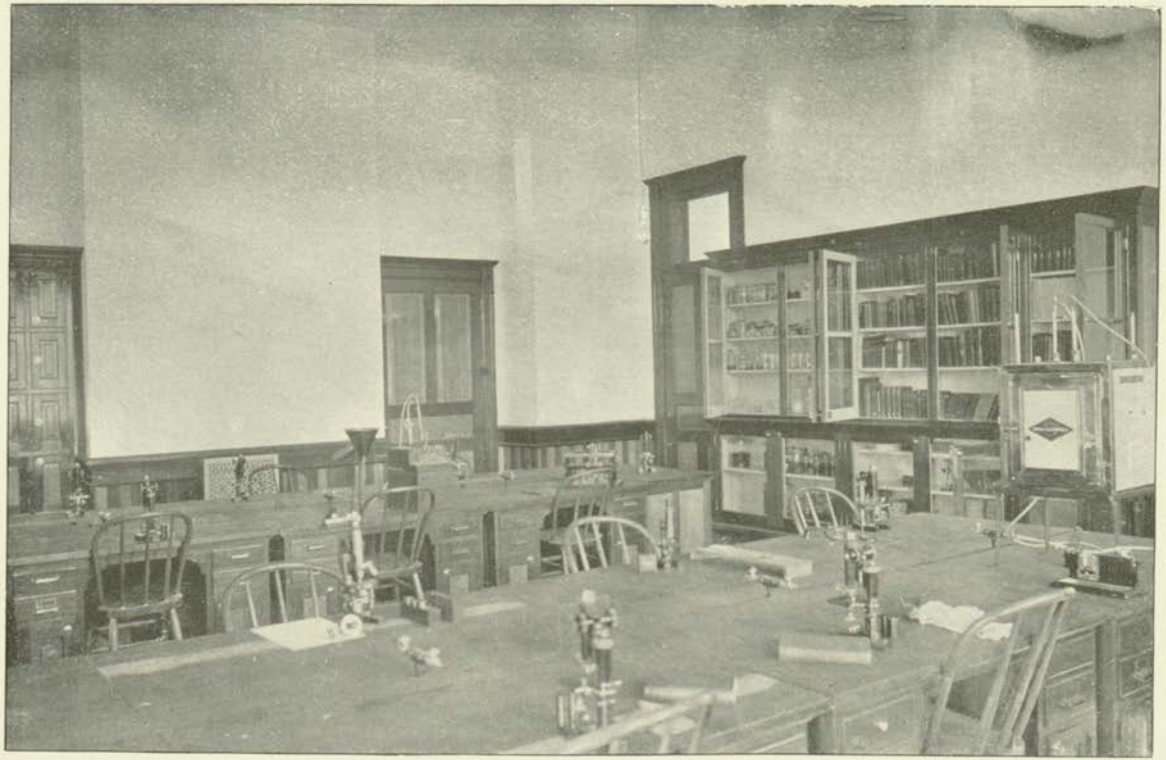
The Biological Laboratory is in University Hall. On the first floor are two rooms and the Museum. In the basement, reached by a private stairway, is the dark room for photography, a store room, a room for general work, and a room for museum and work, the last containing the collection of the Montana fossils. Across the hall is another room, 24x30, used as an unpacking room and room for general work.

On the first floor, the first door to the right as one enters from the front opens into the Biological Lecture Room. This room contains seats for 20, besides laboratory desks for advanced students. It contains one large case of books, one large case for apparatus, a hood case for fumes, a small storage case, a case containing a skeleton, and a sink with water.

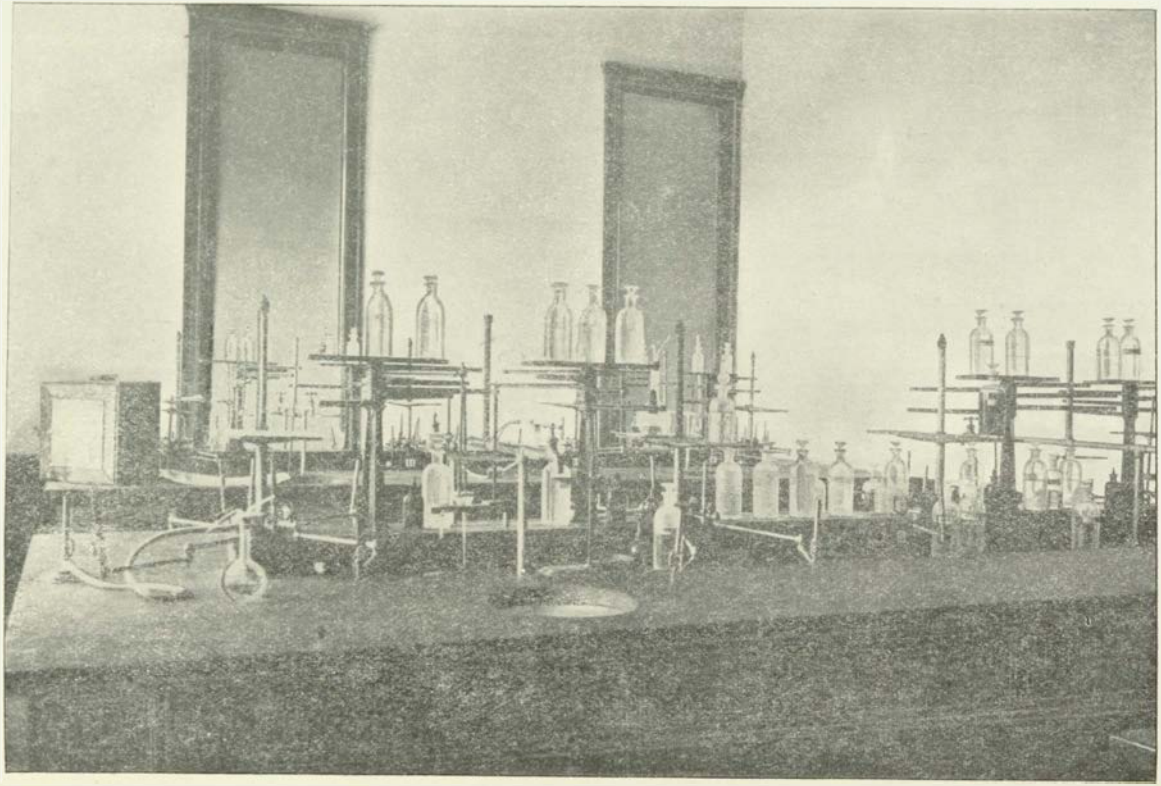
The room adjoining is used for beginning laboratory work, and contains sixteen tables, besides a large case for material, a microscope case, and a sink with four compartments.

The tables are of a special pattern, planned by the professor, and are admirably adapted to the work. They are 28 inches high, 48 inches long, 28 inches wide. Each table contains on either side two drawers and a space below with a door. The drawers are locked by a wooden bar, and the door has a combination lock. One lock, therefore, locks the three compartments, and the student carries the combination in his head. The tops are of oak, 1 1-2 inches thick, stained and paraffined. Each student works individually at a table, and the tables are just high enough to permit use of a microscope vertically without discomfort. Each desk is fitted with gas, and when light is needed the rooms are well lighted by incandescents. The paraffine baths are kept in the fume hood, and by thermostats may be kept going night and day.

The microscope case is worthy of notice. This contains thirty-five compartments, each locked with a combination lock. Each microscope is placed in a compartment and locked up. When the students are assigned a microscope they are given the combination.



BIOLOGICAL LABORATORY.



CHEMICAL LABORATORY.

and they alone have access to the instrument. In this way injury to the instruments is easily traced to the proper source.

The large sink is in four compartments, each with an overflow. Living material can thus be kept the year round.

The dark room for photography is nine feet square, contains a long table with sink, has water, gas and electric light. There are shelves and racks for storage of negatives, plates and other material.

The store room is about nine by twelve, with a rack built from floor to ceiling for storage of glassware, chemicals, and other material.

At the foot of the stairway, in the basement, a room twenty by twenty-four is used as a work room for the professor and advanced students. In this room is a small case for storage, a fume hood, several tables, and shelves. Here is done such work as preparing insects for the Museum, mounting botanical specimens, assorting material, and the like. The basement rooms are light, dry and airy, and as pleasant as any rooms in the building.

Adjoining the room before mentioned, is the room containing fossils, for description of which see under Museum.

A large room across the hall is used for unpacking, chipping rock from fossils, cleaning up dirty material, and the like. This room is used conjointly by the departments of Biology, Chemistry and Geology.

THE CHEMICAL LABORATORIES.

The Department of Chemistry occupies the whole of the second floor of Science Hall, which contains six rooms and a hall. The student laboratories, two in number, are on the north side of the hall; the lecture room, store room, and office and private laboratory of the professor are on the south side. The balance room, also used for a library and reading room, is at the end of the hall, and opens into the Quantitative Laboratory only.

Of the two Laboratories, the larger is for the work in general chemistry and quantitative analysis. This is fitted with two rows

of desks, underneath which are arranged the drawers, forty in number, for the students' apparatus. Each desk is provided liberally with running water at the many sinks, with taps for water on the desk, and tips for gas. The laboratory will accommodate forty students in all, with the maximum number of twenty-four in one section. Each student is given a full set of apparatus, which is locked with a padlock, thus insuring safety.

The reagents are stored in large glass-stoppered, tabulated bottles, in one corner of the room. The ventilation for the laboratory is procured through five hoods, each connected with a separate steam-heated flue. Water and gas are brought into each hood.

The smaller, quantitative laboratory will accommodate sixteen students at once. This room has northern and western exposure, and is therefore well lighted. The arrangement of hoods and flues is the same as in the other. The arrangement of drawers for the apparatus is much more complete than in the smaller laboratory. Eight separate drawers or closets, all locked by one padlock, are given each student. This insures perfect safety for the many pieces of apparatus and solutions in use. The desks are all fitted with stationary iron stands, of the universal type, which allows the desk to be used in all of the many ways necessary for analytical work. Each desk has also an iron plate heated by gas burners. The gas is furnished to the student either by the ordinary gas tip, with rubber connection, or by a stationary swinging gas jet, fitted with the Bunsen burner. Water is brought to each desk in taps, or to the many sinks in the usual manner. The brass suction pumps are attached to the latter and a good suction obtained for filtration processes. The reagents are provided at each desk and in more complete set in a suitable case in one corner. The sets of apparatus issued to each student are very complete and consist of beakers, flasks, crucibles, burettes ,pipettes, bottles, etc.

The balance and reading room opens into the Quantitative Laboratory. In it is one Becker balances, sensitive to .2 mg., for the beginners in quantitative analysis. Shelves are provided fastened to the solid wall, and independent of the floor, for four balances, when available.

The Department Library, placed in this room, is under the direction of the General Library, and subject to such restrictions as will insure the safety of the books. The following books are placed here for the use of students: 125 volumes pertaining to Chemistry, analytical, organic, inorganic, physical, and industrial. This list includes many volumes of importance, as Inorganic Chemistry, by Mendjeleff, Freer, and eight volumes by Roscoe and Schorlemmer; in Analytical Chemistry, works by Fresenius, Classen, Menschutkin, Crookes, Behrens, Blythe, and many others; in Organic Chemistry, by Remsen, Prescott, Gatterman, Bernthsen, Sadtler, Schorlemmer, and others; in Physical Chemistry, by Ostwald, Van't Hoff, Meyer, Eiloart, Ramsay. Besides these, the four volumes of Watts' Dictionary of Chemistry are here found. In Geology are 50 volumes, covering a great range of topics, including Mineralogy, Metallurgy, Glacial Geology, Economic Geology, and Paleontology. Of special note in this line is a complete set of the Mineral Industry, and the works of Dana, Leconte, Shaler and others. The Bulletins of the U. S. Geological Survey, that treat of subjects in Geology and Paleontology, are also placed in this library. In Physics are 35 volumes. Besides these, 12 of the scientific journals pertaining to Chemistry, Physics and Geology, in both English and foreign languages, are available to the student in this room.

The lecture room, on the south side of the hall, will seat forty persons, and is provided with the usual accommodations for taking notes from lectures. The lecture table, 4x14 feet, is provided with water and gas, and is very convenient for lecture experiments. Over the lecture table is a geologic chart, mounted. This chart is six feet wide and over 300 feet long, and so mounted by sliding rings on a cable that it can be easily moved along to show the designs thereon presented. It is made to represent the geologic succession of life throughout the different periods of geological history. The plant and animal life is faithfully depicted by paintings in oils, while many of the geological changes and processes, as sedimentation, erosion, volcanic eruptions, faulting, etc., are also depicted. The geological order is faithfully fol-

lowed, and altogether this chart is a useful and valuable aid in presenting the subject of paleontology.

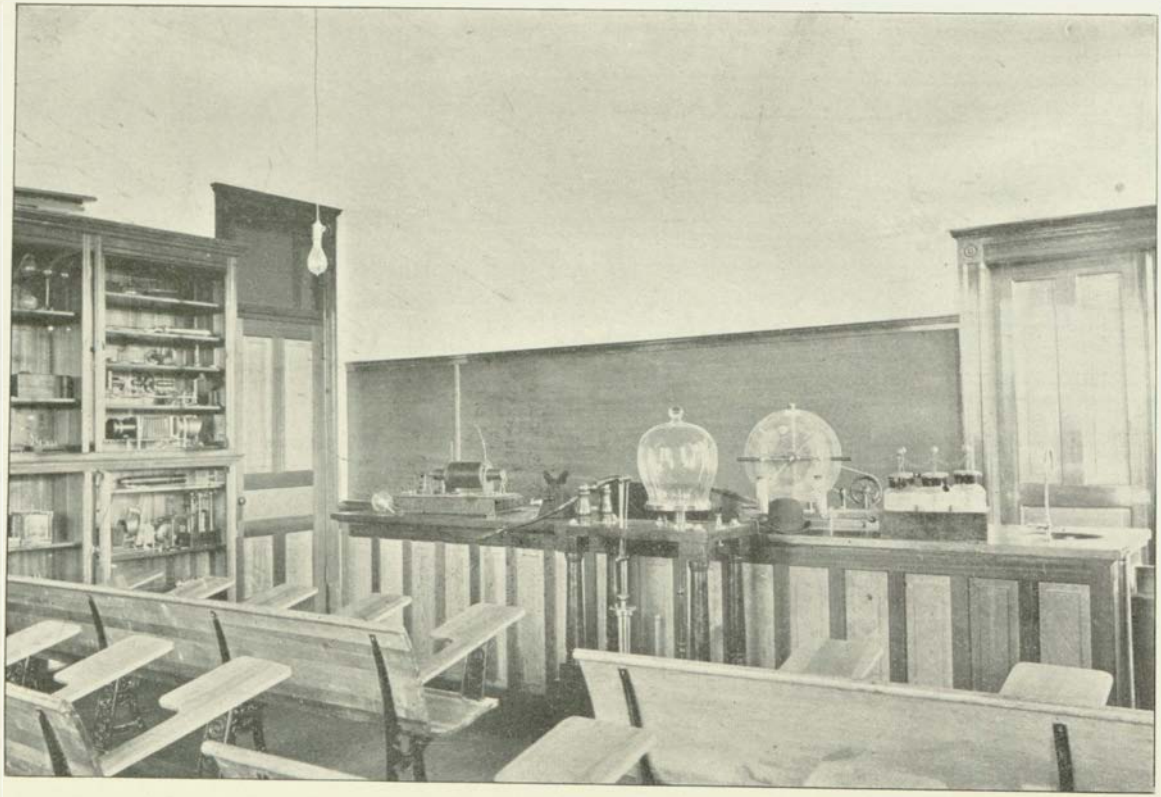
In the rear of this room four tables are provided for the use of the students in Determinative Mineralogy, Blowpipe Analysis, and in General Geology. Gas is brought to these tables for the blowpipe work.

The private laboratory and office of the professor is a well-lighted room, 12x18 feet in size, located in the corner of the building. It opens into the lecture room and into the store room. It is fitted with all of the appliances for desk room, ventilation, water, gas, etc., that is found elsewhere in the laboratories. A Becker balance, sensitive to .2 mg., is placed in this room for the use of the Professor in Analytical Analyses.

The store room adjoins the office, and opens also into the lecture room. Students can obtain material from this room through a small window opening into the hall. In this way the room is easy of access to the students when working in the laboratories. The store room contains, besides the ample shelves and cases for storage, a desk provided with gas, water and suction. This is used for preparation work and is a great convenience. Ventilation is secured by means of a hood of ample size. The laboratories and rooms are all lighted by electricity, or by gas light from Welsbach burners.

Distilled water is made in a block tin still, placed in the attic above the laboratory, and is conducted to the large laboratory through block tin pipe. The still is connected with the steam heating system and is so arranged that it is impossible for any solid or other foreign substance to pass from the system into the condenser. The water is collected in a 20-gallon stone reservoir, thence conducted to the rooms below. The still is so connected as to require no attention, as it is connected with an overflow into the sewer. On the whole, this plant is a model of its kind for small laboratories.

The gas is made from gasoline by means of a machine from the Detroit Gas Machine Co., of Detroit, Mich. The capacity of the carburetter is 465 gallons of gasoline, and is ample for all uses of the present laboratories connected to it. The plant is provided with a



PHYSICAL LECTURE ROOM.

combination mixer, furnished by this company, which is believed to be a valuable adjunct to the machine.

DESCRIPTION OF PHYSICAL LABORATORY.

The Department of Physics occupies one-half of the floor space on the ground floor of Science Hall. One lecture room and one laboratory are provided, which adjoin each other and are used to supplement each other in many ways. The lecture room has a seating capacity of fifty, with the usual arm-rests for the taking of lecture notes. Provision is made for darkening the room by means of rolling shutters, which are easy of manipulation and give a perfect exclusion of all light. A porte lumiere has been mounted in a window of southern exposure to furnish illumination in the daytime. The Colt's projection apparatus is used for projection, either by sunlight, electricity or by the lime light.

The lecture table is provided with gas, water and suction. The laboratory is a room 24 feet square, lighted by windows of eastern and southern exposure. It is provided with two rows of tables, in which are forty-six lockers for students' apparatus. Twenty-four students can work in this laboratory at one time. Each desk is provided with gas from taps in the center of the table. Water is brought to the laboratory at two places, where sinks are placed conveniently.

The apparatus is stored in cases, which line the sides of the laboratory and lecture room, and can be drawn out by the student as needed. All of the material necessary for a complete course of elementary physics, as outlined by Science Department of the National Educational Association, is now available for students' use. Some special pieces for advanced work are also on hand, as, many forms of galvanometers, Atwood's machine for falling bodies, a 9″ induction coil, a cylinder of liquid carbon dioxide, and an excellent air pump.

MECHANICAL LABORATORIES.

SCIENCE HALL—DEPARTMENT OF MECHANICAL ENGINEERING.

The quarters in Science Hall devoted to Mechanical Engineering

consist of the following: Mechanical drawing room and office, on the first floor of the two-story front of the building; wood shop, machine shop, forge shop and foundry, located in the one-story extension of the building; and the engine room, located in the basement under this extension.

The drawing room is a well lighted room, 23x34 feet in size. The office of the Professor of Mechanical Engineering is adjacent to it. Nine drawing tables furnish accommodations for eighteen students. A library of over one hundred volumes of standard works, as well as a large number of engineering catalogues, pamphlets, etc., furnish the student with valuable references.

Passing from the hall of the front part of the building into the one-story extension above referred to, the wood, machine, and forge shops, and foundry, occupy rooms, in the order mentioned. The wood shop is 30x40 feet in size, and is well lighted on both the north and south sides. Work benches, with vices and tool cupboards, furnish accommodations for ten students at bench work, while ten lathes of 11-inch swing enable an equal number to engage in wood turning. There is also an excellent wood turning lathe of 16-inch swing and 12-foot bed, with double-ended spindle, for turning large work. A double circular sawing machine, with cross-cutting and ripsaws, a scroll saw, a wood trimmer and a grindstone complete the equipment of this shop.

The machine shop is adjacent to the wood shop. It is 30x27 1-2 feet in size, and is lighted from both north and south sides. Only a partial equipment has been placed in this shop. A 22-inch swing drill press, a 16-inch stroke shaper, a sensitive drill, a power hack saw, a tool grinder, emery wheels, and one bench with vise, constitute the list of machines. These machines are all well selected and of the best quality.

The forge shop opens off the machine shop. It is 30x30 feet in size. Eight Buffalo down draft forges are placed in this shop, and a Buffalo combination blower and exhaust fan furnishes blast and carries off the smoke. There is also a small portable forge with blower attached. A combination shearing and punching machine,

WOOD SHOP.

and a complete outfit of anvils, hammers, tongs, and other necessary tools, complete the equipment of this shop.

The foundry also opens off the machine shop. Nothing has as yet been expended on this shop, and the room is used as a store room.

In the machine shop there is partitioned off a small tool room. Here are kept all the small tools, such as calipers, taps, scales, etc., for the machine shop, and also many tools for the wood shop. Also a complete stock of supplies, such as machine and wood screws, sand paper, etc., is conveniently stored. A checking system enables the instructor to give out these tools for students' use, without danger of their being lost or mislaid.

A 50-horse-power Automatic Atlas Engine, located in the basement, furnishes power for the shops. It is expected that this engine will be used in connection with work in steam engineering.

THE HEATING SYSTEM.

University and Science Halls are heated by steam from a central heating plant, located in the basement of Science Hall. This basement lies directly under the wood and machine shops. It is 16 feet deep, making a very high and light basement. Steam is furnished by a battery of two horizontal multitubular boilers, 60 inches in diameter, 18 feet in length, and of 80 horse-power each. Steam from the boilers flows into the steam mains through a reducing valve, which reduces the steam pressure to about 10 pounds. University Hall is supplied through a 7-inch pipe, laid under ground. The heating in both buildings is by direct radiation, handsome cast iron radiators of suitable size being placed in all rooms and laboratories except the shops in Science Hall, where coils of steam pipe serve the purpose. The single pipe system of piping has been employed, the condensed steam flowing back to the return pipes through the risers that supply the radiators with steam. The return pipes deliver the condensed steam into a receiver tank, from which it is automatically pumped back into the boilers as fast as it accumulates. The boiler furnaces are built for burning wood, but could be changed to coal at moderate expense.

The ventilation of the building is amply provided for. Air flues lead from each room in the front of the building to a central flue, which passes up through the roof, and fresh air is admitted by means of small openings in the wall, which are located one under each radiator. The incoming air is thus passed over the radiators and warmed.

The heating system, as a whole, has proved satisfactory, and is regarded as a model plant of its kind.

THE LIBRARY.

MARY A. CRAIG, B. S., LIBRARIAN.

The Library must always be the center of college and university work. Without an adequate book supply the work of every department must be narrowed and curtailed. The accumulated knowledge of the ages is recorded in books. There is no line of student work or investigation but demands the use of books.

With the limited means at command, the attempt has been not to supply what was needed, but to supply that which is indispensable and absolutely demanded by the work already in progress in the different departments of the University.

The literary and scientific periodicals are carefully selected, with reference to the department work.

Within the past year the books have all been catalogued and indexed. The cards give accession number, author, title, and other necessary details concerning the books.

The books are being shelved and classed according to the Dewey decimal system. This work will include all pamphlets and periodicals, thereby making all of the material of the library accessible and easily drawn upon. The following are the rules governing the Library and Reading Room:

VII. LIBRARY AND READING ROOM.

1. The Library shall be open for reading and study at such hours as the Faculty may prescribe, and in these hours conversation, or other conduct which may divert attention or otherwise annoy, shall not be allowed.

2. Any one wishing any book or periodical (dictionary excepted) must

LIBRARY.

apply to the Librarian for it, and before leaving the room the same must be returned to the Librarian if not regularly drawn.

3. Books not marked "Reference Book" may be drawn from the Library and retained one week, and then may be redrawn for another week, but no book can be kept by one person longer than two weeks.

4. If a book is not returned within the week for which it is drawn the holder shall be subject to a fine of 10 cents; if not returned within two weeks from the time it was drawn, a fine of 25 cents; if not returned within a month a fine equal to the price of the book.

5. Reference books, current periodicals and papers cannot be taken from the Library room except by special permission of the Librarian, and then only from the closing of the Library to the first succeeding hour of opening.

6. A violation of any of the foregoing regulations, or other rules, which may from time to time be prescribed, may forfeit a student's right to the use of the Library for such time as may be designated.

7. It is the duty of the Librarian to enforce the above regulations.

The following is a list of the magazines and periodicals on file for the use of members of the University:

The Forum.
Popular Science Monthly.
Harper's Weekly.
Harper's Monthly Magazine.
North American Review.
Atlantic Monthly.
The Cosmopolitan.
The American Naturalist.
Science.
Journal of Geology.
The Scientific American and Supplement.
The Railway Age.
Foundry.
Entomological News.
The Analyst.
American Archaeologist.
Bulletin de la Chemique.
Journal of London Chemical Society.
American Journal of Mathematics.
Zum Fels und Meer.
Die Gartenlaube.
Mutter Erde.

Illinois Staats Zeitung.
Ueber Land und Meer.
Psyche.
Nature.
The American Monthly Microscopical Journal.
The Journal of Applied Microscopy.
The American Journal of Science.
Bird Love.
Zoologischer Anzeizer.
Journal of Morphology.
The Photographic Bulletin.
The American Architect.
The Outlook.
Current History.
The Educational Review.
School and Home Education.
Engineering News.
Engineer's Magazine.
Cassier's Magazine.
The American Machinist.
The Electrical World.
The Western Electrician.
Mining.
Political Science Quarterly.
Ladies' Home Journal.
American Journal of Psychology.
The Independent.
The Dial.
The Century Magazine.
Revew of Reviews.
Scribner's Magazine.
Chautauquan.
Forest and Stream.
The Chemical Journal.
The American Chemical Society Journal.
The School Review.
Book Reviews.
The Monist.
Education.
Zietschrift fur Anorganische Chemie.
Botanical Gazette.
The Classical Review.

The Journal of Association of Engineering Societies.
The Engineering and Mining Journal.
The Western Mining World.
Power.
The Electrical Review.
The Public School Journal.
Public Opinion.
Fliegende Blaetter.
Merck's Report.
The Bookman.
The Literary Digest.
The Artist.
The International Studio.

The following newspapers are on file and are for the most part donated by their respective publishers:

The Chronicle, Bozeman.
The Bitter Root Times, Hamilton.
Avant Courier, Bozeman.
The Anaconda Standard, Anaconda.
The Western News, Hamilton.
The Billings Times, Billings.
The Billings Gazette.
Democrat-Messenger, Missoula.
Glendive Independent, Glendive.
The Neihart Herald.
The Silver State.
The Madison County Monitor.
The Big Timber Express.
The Libby News.
The Missoulian.
Montana Fruit Grower, Missoula.
Belt Valley Times, Belt.
Helena Independent, Helena.
The Citizens Call, Philipsburg.
Western Mining World, Butte.
The Inter-Lake, Kalispell.
The Tribune, Butte.
Weekly Tribune, Dillon.
The Northwest Tribune, Stevensville.
Rocky Mountain Husbandman, White Sulphur Springs.
Mining, Spokane.
The Mining and Railway Review, Butte.

The Dillon Examiner, Dillon.
The Townsend Messenger, Townsend.
The Jefferson County Sentinel, Boulder.
The Big Timber Pioneer.
The Forsyth Times.
The Sentinel, Boulder.
The Spokesman-Review, Spokane.
The Ravalli Republican, Hamilton.

The following shows the number of books, pamphlets and periodicals in the Library this year, and the increase over the last report:

	Last Report.	Increase.	Total.
Number of bound volumes.....	2,889	2,446	5,335
Number of unbound volumes	77	64	141
Number of pamphlets	2,281	350	2,631
Number of periodicals	106	5	111

THE MUSEUMS.

These are contained in two rooms—one on the first floor, one in the basement—besides the room used by the different departments as an unpacking and storage room.

The room on the first floor is in the southeast corner, is 24x30 feet, and is filled with cases and material. Owing to the small size of the room and the numerous collections, the cases have been shoved much closer together than they should be. Along the walls are the following cases: A case 19 feet long, for storing alcoholic specimens; a case containing 84 Comstock insect cases; a case 12 feet long and 7 feet high, divided into compartments, for botanical collections; a case for birds; a case for display of insects. In addition there are four other cases. One is 5x12, in two parts, the upper for display, the lower with interchangeable drawers, for storage. Another is 5x9, in three compartments, all for display. The other two are 5x9, on legs, the top for display.

The Museum Room in the basement contains five large cases, all with glass doors, besides a rack for books and another for storage, and a sink with water. It contains the Douglass collection of Montana fossils, upon which much work and study is being put. All the cases are packed full of material, which is priceless in value, from the fact that it contains many species yet new to science.

SCIENCE HALL.

The unpacking and store room is across the hall, and has been described previously. (See under Biology.)

The additions to the Museum the past year are as follows:

Geo. E. Boos, city, two samples of lead-silver ore, from Vermilion, Mont.

Oliver Pichette, Cedar Creek, gold and silver ores from Cedar Creek.

W. J. Baker, Wardner, Idaho, one sample of silver-lead, Wardner, Idaho.

U. S. Geological Survey, Washington, D. C., 138 specimens of rocks (Educational Series of Rocks).

G. Stuart, Hamilton, Mont., Indian pipe, from Nez Perces reservation; lead-silver ore, Victor, Mont.

Collected by the Department of Chemistry: Numerous specimens of garnet, calcite, tourmaline, orthoclase, characteristic sets of first and second class copper ore, from the Anaconda, Bell, Never Sweat, Diamond, Original, Alice, Blue Bird, Mountain Con, Colusa-Parrot, and Parrot mines. Full set of concentrates and seconds from the Parrot concentrator. Specimens of coal from Red Lodge, Crested Butte, Colo., and Diamondville, Wyo.

George H. Kenett city, pair of elk antlers

Lem H. Tracy, city, two pairs of elk antlers.

Buy purchase, a mounted camel's skull.

Lon Lyons, city, a collection of Alaska flowers.

Earl Douglass, Medford, Minn., a large collection of Montana fossils. These may be classified under four heads: Invertebrate fossils, from Montana and other states. Much of this material is as yet undetermined and undoubtedly contain many new species, since no work has as yet been done on these formations in Montana. Second. Vertebrate fossils, from the lake beds of Montana, especially from the neocene. The extent of the species new to vertebrate paleontology and of the light which this material may throw on this line of paleontology can as yet be hardly estimated. Third. Several nicely crystallized minerals and characteristic ores. Fourth. A large number of rock specimens collected from all parts of the state. This material will supplement the collection, already large, by by which it is expected to represent the whole geological formation in the state.

Theo. J. Hoover, Leland Stanford, Cal., some skins of California warblers.

Earl Douglass, University, two rattlesnakes.

C. E. Herrick, Lo Lo, a lizard.

Fred D. Smith, University, a collection of insects taken at Drummond.

H. K. Burrison, West Newton, Mass., by purchase, 140 species of Indian and South American butterflies.

T. D. A. Cockerell, Mesilla Park, N. M., two species of scale insects.

L. O. Howard, U. S. National Museum, six species of scale insects.

Robert Torrance, Billings, a very large tooth of fossil elephant (elephas primigenus).

Biological Station at Flathead Lake, fish, bird skins, insects, plants and dredgings, in considerable quantity, much of it as yet undetermined, but now being worked up by specialists.

Smithsonian Institution and United States National Museum, a gift of a hundred species of shells.

George Westby, city, specimens of English coals and jet; also fossils and minerals from Augusta, Mont.

Prof. Wm. M. Aber, a sample of calamine. A loan of a very large and beautiful specimen of calamine. Two samples of magnetite ore in powder, and in briquettes, from Edison's magnetic separatory.

R. M. Cobban, city, one sample of crystallized native copper from Butte, Mont. Samples of copper ore from Copper Cliff, Mont.

Oscar Sedman, city, one sample native copper from Butte, Mont. Copper ores from Copper Cliff District.

H. Hazelton, city, fourteen specimens of polished home and foreign granites.

Frank Simons, Dawson City, Alaska, one crystal of gold from the Klondike.

Dr. W. P. Mills, city, one sample of jasper from Pullar Springs, Mont.

Dr. W. P. Parsons, city, two skins of rattlesnakes from Texas.

Paul Jones, Ovando, Indian arrow tip and Indian club.

Herman Kohn, city, horned toad from Texas.

D. E. Bandmann, city, pear covered with San Jose scale.

Joe Waldbillig, Drummond, two rattlesnakes.

Mrs. Wm. Dickinson, geyserite from Yellowstone National Park.

Through the courtesy of Mr. Marcus Daly and the State Officers of Montana, another very important addition to the geological collections was sent from the Omaha Exposition to the University. This consisted principally of a large number of representative ores from the principal mining districts of Montana. The Basin, Elkhorn, Hassel, Castle, Garnet and Libby Districts especially are well represented. This material is in large pieces, much larger than necessary for exhibition in the Museum. It is contemplated to prepare several sets of these ores for exchange with other museums for ores or other valuable geological material. In this gift were

MUSEUM.

several fine specimens of crystallized minerals and many sets of concentrates from the mills of the State.

Mr. R. M. Cobban, of Missoula, added to his previous gift a check of $25.00, to be used for minerals needed in the course of Mineralogy. Nineteen minerals, including many of gold and silver, were purchased with this money and have been placed in the Museum.

The U. S. Geological Survey has added a set of rock chips for class study and for microscopic sections, to accompany the set of Educational Series which was added in 1898.

Additions to the collection of ores by gifts from private individuals have been common. In this list should be noted gifts from Mr. J. McCormick, of Bonner; Mrs. Geo. Boos, of Missoula; Standard & Griffin, of Kalispell; Mr. L. Lyon, of Missoula; Mr. R. M. Cobban, of Missoula; A. B. Browne, of Bearmouth; and many others.

By collection by Professor F. D. Smith, additions were made as follows: A large number of rock sections, representing the formations between Missoula and Garrison. Several species in large numbers of fossils from the cretaceous and carboniferous near Bearmouth, Drummond and New Chicago. Ores from the Libby and Dunkelburg mining districts, invertebrate fossils from the neocene lake beds at New Chicago.

By purchase by the Department of Chemistry, a set of 53 minerals suitable for class work in Mineralogy. Also a set of the same 53 minerals in chips in bottles, for blowpipe analysis.

THE WEATHER SERVICE.

On the departure of the 25th U. S. Infantry from Fort Missoula, the instruments belonging to the Weather Bureau were placed in the keeping of the University. The instruments consist of a set of maximum and minimum thermometers, a standard thermometer, instrument shelter and rain gauge. A pair of wet and dry bulb thermometers for determining the dew point has been added, and also a standard barometer of the Fortin pattern .

The records at Fort Missoula have been taken continuously for nineteen years. As the University is but four miles from the Fort,

in practically the same climatic conditions, the continuation of the observations is very desirable.

The work has been placed in charge of Prof. M. J. Elrod of the Department of Biology.

THE UNITED STATES GEOLOGICAL SURVEY.

A topographical map of a portion of the state having Missoula as the center is being prepared by the government. This region is later to be worked up geologically, and will be given in the series of geological maps now being issued by the U. S. Geological Survey. The University is aiding in this work in every way possible, and will be very much benefitted by the results reached by the survey. At the present writing a bench mark for altitude has been placed in the stone at the left entrance to the main building, the altitude being 3,212 feet above sea level. This has now been corrected by the survey brought in from the Pacific Ocean, whereby the corrected height of 3,223 feet is established. The triangulation party has established a bench mark on the campus, with stone piers marking the meridian line, giving the latitude and longitude. The University therefore has altitude, latitude and longitude accurately determined, and these marks will no doubt be starting points for future work.

THE WATER STATIONS.

Within the last year the offer was made to the Hydrographic Division of the U. S .Geological Survey by the University authorities and those most interested, whereby the University agreed to take charge of such stations for measurement of river heights and discharges as the government should deem advisable to establish in the vicinity of Missoula. As a result three stations were established by Mr. Babb of the Survey in June, '98, at the following points: At Missoula on the Missoula River, where the height gaging is made by a new gage on the north bank of the river, a short distance above the Northern Pacific Railroad bridge, and the discharge gaging on the bridge of the Bitter Root branch of the Northern Pacific Railroad; at Bonner, where both gagings are made on the highway bridge over the Blackfoot River; and at the Buckhouse bridge, over the Bitter Root, from which bridge all readings are made. A fourth

station has later been established on the Vine Street bridge over the Rattlesnake Creek, where both gage heights and discharge masurements are made.

The work consists of daily readings of gage heights made by observation at each point, and of discharge measurements made at varying intervals, according as the rivers are stationary or varying in height. At least monthly measurements are required.

The importance of this work is very great, since in no other way can accurate knowledge be had of the amount of water flowing through the river and of the fluctuations of the rivers. The data thus obtained of the volume of these streams for every day of the year and for many years in succession, will be valued by engineers, farmers and municipal authorities alike, and the value must increase as the data increases. Students who desire to learn the principles of water measurement as made by this system are given encouragement to take up the study of this most interesting and important science.

The results obtained have already attracted much attention and will in the future form a series of bulletins to be issued by the University. They are also published by the Government as portions of the regular bulletins of the U. S. Geological Survey.

The University agrees to furnish protection to all of the instruments and property used in this work. The work is in charge of Professor F. D. Smith, of the Department of Chemistry and Physics. Messrs. Buckhouse, Westby and McCormick have been appointed observers.

SUMMER GEOLOGICAL EXPEDITION.

For the last four years Mr. Earl Douglass has made regular summer trips in Western Montana, studying geology and collecting fossils, mostly from the miocene lake beds. These fossils were stored at Belgrade, Bozeman, Virginia City, Laurin, and other places.

When the University was opened, a room, provided with excellent cases, was reserved for this material. The work of unpacking and arranging the specimens was commenced in February. On close examination it was found that some of these specimens were new

to science. A thesis, in which a number of these is described, is soon to be published.

Heretofore all the vertebrate fossils had been found east of the main divide of the Rocky Mountains, and it was not expected that much of interest would be found west of the Boulder River. Prof. F. D. Smith was appointed to accompany Mr. Douglass and assist in the work of making farther collections.

The expedition started the last of June. The course was up the Hell Gate Canyon to Bearmouth, and then across the low divide to New Chicago and Flint Creek. The lake beds were found to be quite well exposed on the eastern side of Flint Creek Valley. The lower beds are light gray and composed of marl and clay. The upper ones are cream colored clay and gravel.

A camp was made about one and a half miles south of New Chicago, at the foot of clay bluffs, and the search for specimens began. No sooner was a bare spot of clay reached than fragments of bones were found, where a part of the skeleton of some ancient animal had been buried in the mud of the old lake. The fossil hunter is especially happy when he can find teeth, jaws and skulls, as these, with the foot bones, are the best index of the character of the animal. Often one cannot be certain to what species the animal belongs unless teeth are found.

At first the number of good teeth discovered was small compared with the number of bones. After a few days' work in collecting those that were found, a place was discovered where the bones were still more numerous. Four skulls, belonging to at least three species of extinct animals, were found. Two were related to the antelope. One fine skull had one side of the lower jaw with it, a thing not found before, and also many bones of the skeleton. Another is so unlike anything else known, living or extinct, that it would be misleading to compare it with any of them. The skull, lower jaw and a number of bones of the rhinoceros were found imbedded in the clay. Many other interesting remains belonging to the Loup Fork epoch, were found. About one month was spent in this region.

East of Drummond a few good White River fossils were found

THE STATION BOATS.

In Deer Lodge Valley there are great quantities of lake bed deposits, but the exposures are limited, and as a rule were not found favorable to the preservation of fossils.

A few Loup Fork fossils were found, but were poorly preserved. Mr. George Ward, of Deer Lodge, contributed some beautiful bone fragments, which had been found in loose, yellowish sand.

It is important that people should know that though there be little or no money value in such specimens, still they are of great value to science, and care should be taken in their preservation.

In the region of Whitehall, hundreds of small bones and jaws were found, but they are probably most of them of the same species as those found in the Bad Lands, in the region of White River, in South Dakota, after which river the formation is named.

In the North Boulder Valley the Loup Fork beds appear again, with only a few poor fossils. East of this, in the region west of Three Forks, the beds are again White River. Here the greater part of two large skeletons were unearthed; one of these was a Titanotherium, the great beast of the White River period, which roamed over the mountains and swam in the waters of the great lakes that filled the valleys of what is now Western Montana.

THE UNIVERSITY BIOLOGICAL STATION.

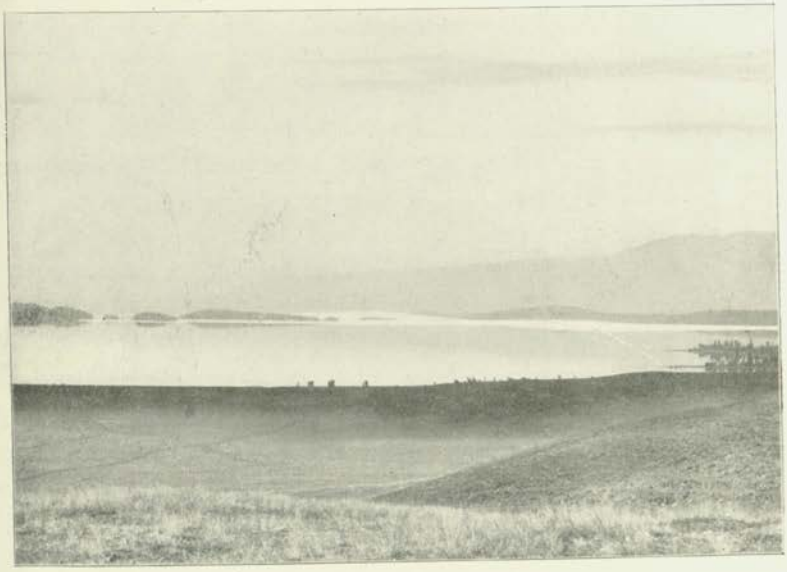
At the June meeting (1899) of the State Board of Education, it was determined to establish a biological station on Flathead Lake. Prof. Morton J. Elrod was appointed Director.

The station was planned for the purpose of extending to the people of the state interested in such work an opportunity for original and investigative work on the fauna and flora of the state, and at the same time to offer to the students and teachers of the state a chance to collect and preserve material for their own or for class use. The object is, therefore, not to see how many people may be brought together for a month, but to do as much as possible toward working up the resources of the state. In the original plan there was considered the possibility of making a study of the fish and fish food of the lakes and rivers of the state; of making a systematic study of groups of insects, birds and plants, not only from an economical

standpoint, but also from the standpoint of pure science. Obviously such a plan cannot be carried out in a year or two, but will offer work for an indefinite time, and to a large number of workers. Such a plan is in harmony with the general work of the University of the State, and will add materially to the collections of the Museums and to the opportunities and facilities for work on the part of many who cannot attend the regular sessions of the University.

The site chosen for the station is on the bank of Swan or Big Fork River, near the outlet, on land adjoining the Flathead Club grounds. It is expected to work in this locality a few seasons and then move to a new field. A piece of ground of some five acres has been leased for a period of six years, and a small laboratory, 18x24, containing a small store room, a dark room, and tables for twelve students, was built on the bank of the river and close to a large spring of pure water. The ground is well adapted for camping, and board of excellent quality may be had at private families if desired. As the work progressed the wisdom of the choice of location became apparent. At this point the river offers a perfect harbor for boats. Fishing is excellent. Birds are exceedingly abundant. A few hours walk and one can reach Swan Lake, Echo Lake, Mud Lake, and in the region of Kalispell many other lakes are to be found. The Lewis and Clarke Forest Reserve extends almost to the Station, offering special inducements in some lines of work. It is but a couple of miles to Flathead River, and the region north of the Station is a rich agricultural and fruit country, whose merits are very imperfectly known. The river immediately above the station is a series of cataracts for a distance of two miles, the water a sheet of foam coming down with a roar heard day and night for miles.

Material Equipment of the Station.—The laboratory has been mentioned. It is a substantial frame structure, well suited to outdoor work. A gasolene launch has been purchased. This launch is 16 feet long, 4 feet beam, and will carry eight persons. It is an absolute necessity for work on the lake. It has canopy top and side curtains, with lockers on the sides. The launch has been named the "Missoula," in honor of the generous citizens who have given



FLATHEAD LAKE.

such cordial support to the enterprise. A second boat—a row boat—will carry five people, and is the best and easiest row boat on the lake. These two boats will be at the disposal of those present, and will enable students and workers to get around very nicely. In addition to the boat, numerous smaller pieces of material have been procured, such as nets, dredges, and accoutrements for the building and for camp life.

Attendance.—During the past year the plans have been matured and the first session held. The first printed announcements were received from the hands of the printer June 6, and the Station was advertised to open July 17th. This was a very short time for announcing the work, and most of those who might have attended had already made arrangements for the summer. As the idea had not been discussed much, by far the larger number knew little of what was proposed. Cheap rates to the east took many who had planned to attend. Little was expected the first year, save to get things started, and in this we were very successful. It is hoped such arrangements may be made as will enable the director to have printed announcements for next season ready for distribution early in the winter. The attendance at the Station, together with the work pursued, is as follows:

Prof. M. J. Elrod, with general oversight of the work, collecting especially for study of Dragonflies and microscopic life.

Supt. J. M. Hamilton, Missoula, studying and directing the work in Botany and Nature Study.

Mrs. J. M. Hamilton, Photography.

Miss M. E. Livingstone, teacher of Science in Anaconda High School, General Zoology and Photography.

Miss Minnie Spurgin, Missoula Public Schools, General Zoology and Botany.

Prof. Fred D. Smith, of the University, preparing a map of the lake, with soundings, and studying the geology and hydrography of the region.

Mrs. Fred D. Smith, Lepidoptera.

Miss Mame Sloane, Missoula Public Schools, General Zoology and Botany.

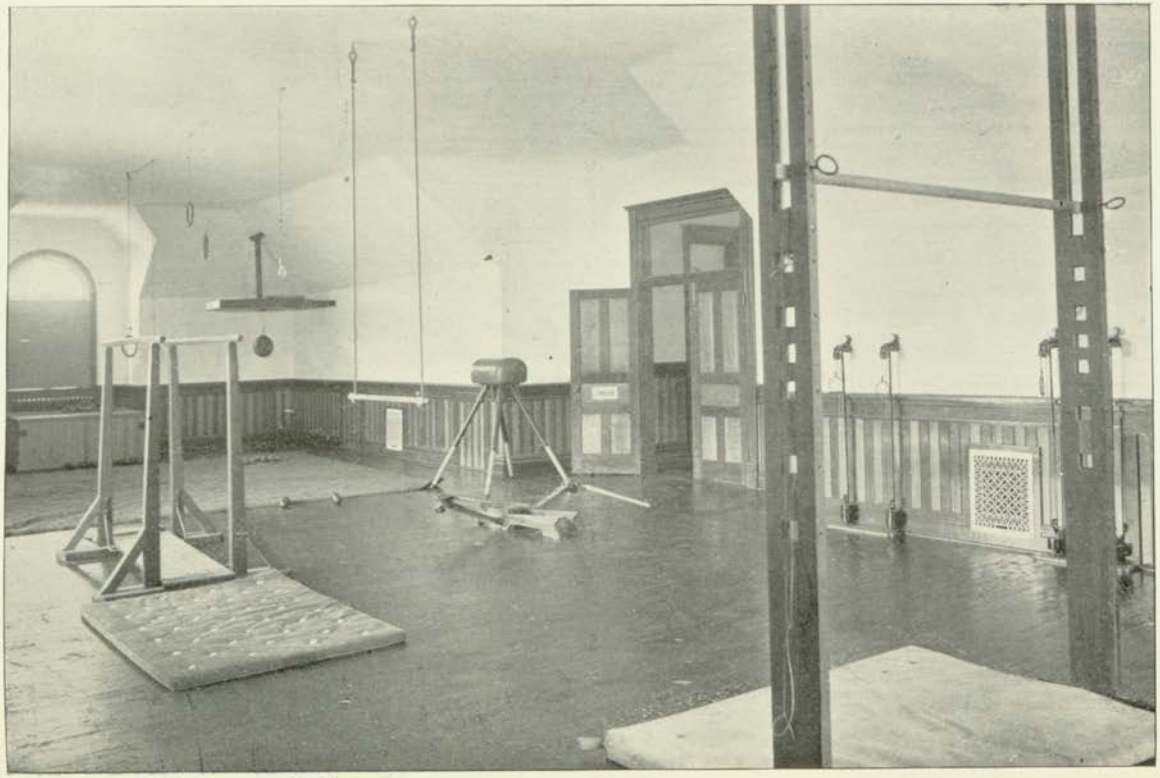
Miss Jimmie Mills, student of the University, Ornithology.

Mr. Richard Kessler, engineer of the University, looking after the boats.

Results Accomplished the First Year.—The merits of the Station must be judged by the results obtained from the work done. The results cannot be large for the first few seasons. After collections are made they must be worked up. This must be done in the interim of other arduous duties, and must then be published before they are to be judged. Dr. J. W. Blankenship, of the College of Agriculture and Mechanic Arts, has agreed to determine the plants collected around the lake, which will afford material for a good list. They are now being prepared for him. Prof. Bruce Fink, of Upper Iowa University at Fayette, Iowa, has volunteered to make a study of the lichens, and a box of some fifty or more specimens has been sent him. Prof. L. A. Youtz, of the Montana Wesleyan University at Helena, is studying the entomostraca, and most of the collections in this line have been sent him. He is now at work on them. Prof. Fred D. Smith, in connection with his work on the U. S. Hydrographic Survey, is making a study of the geological history of the lake, the hydrographic problems the lake presents, its surface, drainage, etc. Prof. Elrod has in preparation a paper on the dragonflies of Montana, including material collected at the Station and at various other places in the State, and also all that is known and recorded by other collectors. He is also at work on the butterflies of the region, and has many notes on birds covering the three years he has been in the State. Others will be engaged to work on collections whenever opportunity is afforded. The preceding will show that much has already been done in actual investigation work.

LITERARY SOCIETIES.

Two literary societies are well sustained and afford an excellent opportunity for drill in parliamentary usage, and in the rhetorical work which is of such great advantage to the student.



GYMNASIUM.

The annual exercises of these societies are of a high order and show the result of careful training and practice.

The young men's society is known as the Hawthorne, and meets on alternate Fridays at 8 p. m. The young ladies' society is called the Clarkia, and has regular meetings on every other Friday at 3 p. m.

These societies have their hall in the main building of the University. It has never been thoroughly equipped. Means should be found to furnish the necessary equipment that will give the hall a homelike appearance and make it pleasant and attractive. Pleasant and attractive surroundings add efficiency in any department of work.

LECTURES AND ENTERTAINMENTS.

A number of very enjoyable lectures and entertainments have been given. Especial mention may be made of the piano recital of Godowsky, the violin recital of Max Bendix. The entertainment given by Dr. Heritage, and the annual recitals given by the School of Music. The lecture before the literary socities given by Rabbi Maurice Eisenberg, of Butte, on Shylock, was very much appreciated by all who were so fortunate as to hear it. Prof. Willis, of the Geological Survey, gave an illustrated lecture on The Growth and Decay of Mountains.

ATHLETICS AND GYMNASIUM WORK.

A committee from the Faculty, entitled the Committee on Athletics and Gymnasium Work, has general oversight of the atheletic sports and gymnasium practice. The details of the management are in the hands of the Board of Directors of the Athletic Association. Regular gymnasium practice has been organized, and is required of all students to the extent of one hour each week. This has been made possible by one of Missoula's foremost citizens, Mr. C. H. McLeod, who has very kindly equipped the gymnasium with apparatus to be found in a first-class gymnasium. The list includes parallel and horizontal bars, trapeze and swinging ring, chest weight machines, and Whittleley exerciser, vaulting horse,

punching bag, boxing gloves, fencing foils, Indian clubs, dumb bells, wrist and finger machines, and rowing machine. Besides these there are two small mats for the bars, and a large gymnasium rug, sixteen feet square, for wrestling and boxing.

The gymnasium is open to the students every afternoon after 4 o'clock, under the charge of a competent and responsible person.

The athletic field, located in the northwest corner of the campus, is being put in shape. A quarter of a mile bicycle track is surveyed and partially graded. Within this track there will be a running track, the base ball diamond, the foot ball field, and the tennis court.

The Faculty have established the following important regulations:

First. The foot ball season will extend from September 1st to Thanksgiving Day.

Second. Only bona fide students in the University, taking at least six hours per week of recitation or lecture, can represent the University in any of its games with other college teams. Teams representing the University will not be permitted to play teams representing other schools or colleges unless the latter conform to the same requirement for study.

The University desires to make every effort for the advancement of pure athletics and physical culture.

All professionalism has been excluded, and every effort has been made to place the athletic work so that it will tend to develop the proper physical training and encourage the university spirit in the institution.

THE ORGANIZATION OF THE UNIVERSITY.

When the University was opened, the general policy was to establish a few chairs and to divide up the usual collegiate work amongst these in the mose advantageous manner possible. As the University developed and new lines of work were demanded, and more means provided, it was expected that new departments would be established by making divisions of those already established.

This process has been carried out. The Department of Natural

Science has been divided into a Department of Biology and a Department of Chemistry and Physics. The Department of History and Literature has been separated, the Department of Literature keeping charge of the work in English, and the Department of History made to include the work in Philosophy, social, political and intellectual. The Department of Applied Science has developed into a School of Mechanical Engineering.

These changes give us at the present time the following departments: History and Philosophy, Chemistry and Physics, Biology, Modern Languags, Ancient Languages, English and Literature, Drawing, Mechanical Engineering, Mathematics.

The law provides that the President shall have charge of a department of the University until, in the judgment of the State Board of Education, he should be relieved of the same. The department of History and Philosophy is still cared for by the President of the University. All the work given in Philosophy and the most advanced classes in History are taught by the President.

Relief from class room work would give the opportunity of doing much valuable work for the general progress of the University, that under present circumstances must remain undone. Your earnest attention is respectfully called to this matter.

COURSES OFFERED.

With the beginning of the year 1898 the class system was entirely abandoned in all collegiate departments, except in the School of Mechanical Engineering. This school, having so much required work, and so little that could be placed as elective, was made an exception.

The university plan was adopted. A credit was defined as one semester's work of lecture, recitation or laboratory exercise, equivalent to one hour four times per week. Thirty-two such credits were placed as the requisite for graduation.

That the needs and special inclinations of the different students might be consulted as far as possible, certain of the outlined courses of study were required for each of the respective degrees, and the rest were left to the selection of the student.

Certain subjects were required of all students; other subjects were required in special courses, to be elected from definite lines of work, and still others were left as free electives, the choice in free electives to be governed in part by the arrangement of subjects on the programme. The range of elective subjects was made as great as the limited number of instructors would permit.

This plan of work has proven eminently satisfactory to students and faculty and will be continued. Its great advantages are the amount of choice given to the student.

The course of study in the Preparatory Department covers the work required for admission to the different collegiate courses. The requirements of the different courses, while not identical, have the same equivalent in value.

The standard of admission to the collegiate departments is equal to that of our best state universities, and should be maintained, although it will cost a severe effort to do so.

DEGREES CONFERRED AND GRADUATE WORK.

The first degrees given by the University were in June, 1898, when the Degree of Bachelor of Arts was conferred on Mrs. Ella Robb Glenny, and the Degree of Bachelor of Philosophy on Miss Eloise Knowles.

In June, 1899, degrees were conferred as follows: Zoe Bellew, B. A.; Anna Louise Hatheway, B. A.; Helen McCrackin, B. A.; George Hempstead Kennett, B. S., and Charles Pixley, B. A.

Only one graduate degree has been conferred, that of M. S. upon Earl Douglass, a B. S. of Ames College, Iowa.

Two students are enrolled this year in graduate courses. While at first glance these numbers may appear small, yet this is not true when we consider the conditions and the newness of the University. These figures show that a stimulus has been given in the right direction, and that the opportunities for higher education offered in our State are appreciated.

ATTENDANCE.

The total enrollment for the fiscal year ending November 30, 1899, is 238. While this is a larger number than was enrolled last year, the increase has not been very great and has been in collegiate departments.

The opening of new high schools in the state, and the raising of the standard of admission has tended to decrease the number in the Preparatory Department,—a very gratifying result.

SUMMARY OF ENROLLMENT BY CLASSES.

Collegiate French	45
Preparatory French	4
Collegiate German	59
Preparatory German	6
Preparatory English	123
Advanced Rhetoric	53
Elective Rhetoric	20
Required Literature	40
Elective Literature	10
Graduate Literature	2
Required Drawing	35
Elective Drawing	4
Elementary Algebra	66
Plane Geometry	39
Solid Geometry	34
Trigonometry	44
Higher Algebra	11
Analytical Geometry	9
Calculus	2
Elective Geometry	4
Latin	105
Greek	4
Roman Life	4
Greek Life	11
Graduate Latin	1
Mechanical Drawing	29
Descriptive Geometry	6
Kinematics	1
Elementary Design	2
Graphical Statics	1

Bench Work in Wood (Rec.)	6
Shop Work (Wood)	25
Pattern Making	4
Preparatory Biology	16
Collegiate Biology (First Year)	33
Collegiate Biology (Second Year)	17
Collegiate Biology (Third Year)	3
Elementary Chemistry	39
Qualitative Analysis	10
Quantitative Analysis	5
Organic Chemistry	1
Preparatory Physics	41
Mineralogy	8
Geology	9
Physical Geography	16
General History	65
English Constitutional History	12
Psychology	12
Political Science	3
Political Economy	7
History of Philosophy	2

RECEIPTS AND EXPENDITURES.

The following is an account of the receipts and expenditures for the year ending Nov. 30, 1899:

RECEIPTS.

Balance on hand from Library Fund	$ 2,633.10
Received from Matriculation Fees	1,394.06
From Legislative appropriation	21,590.00
Total receipts	$25,617.16

EXPENDITURES.

Salaries of Faculty and Assistants	$13,957.39	
Salaries of Employes	1,065.00	
Laboratory Equipment	1,372.09	
Laboratory Supplies	705.97	
Library	1,758.61	
Expressage, freights and drayage	757.32	
General supplies	275.82	
Printing and Advertising	352.50	
Insurance	1,221.92	
Water, heat and light	1,056.47	
Labor, improvements	2,176.94	
Office supplies (postage, etc.)	61.95	
Traveling expenses	218.75	
		$24,980.73
Unexpended balance		$636.43

All of which is respectfully submitted.

OSCAR J. CRAIG,
President.